AD-A124 084 19313A MLRS MISSILE NUMBERS BC-137 BC-123 BC-134 BC-119 1/1
BC-125 BC-115 ROU..(U) ARMY ELECTRONICS RESEARCH AND
DEVELOPMENT COMMAND WSMR NM ATM.. D C KELLER 08 DEC 82
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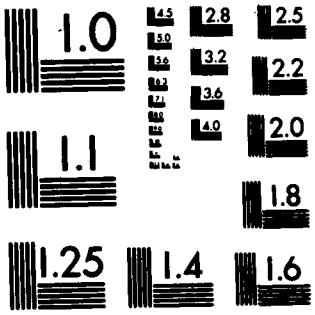

MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

AD A 124084

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

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Round Numbers V-334/OT-13 thru V-339/OT-18

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)
Meteorological data gathered for the launching of the 19313A MLRS, Missile Numbers BC-137, BC-123, BC-134, BC-134, BC-119, BC-125, BC-115, Round Numbers V-334/OT-13 thru V-339/OT-18 are presented in tabular form.

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INTRODUCTION

19313A MLRS, Missile Numbers BC-137, BC-123, BC-134, BC-119, BC-125 and BC-115, Round Numbers V-384/OT-13 thru V-389/OT-18, were launched from Tula Gate, White Sands Missile Range (WSMR), New Mexico, at 1515:03, 1515:07, 1515:12, 1515:16, 1515:21 and 1515:25 MST, 08 Dec 82. The scheduled launch times were 1515 MST, with a 4.5 second seperation.

DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

1. Observations

a. Surface

(1) Standard surface observations to include pressure, temperature (^{o}C), relative humidity, dew point (^{o}C), density (gm/m^3), wind direction and speed, and cloud cover were made at the Tula Gate Met Site at T-0 minutes.

(2) Anemometer data were provided from existing tower-mounted anemometers at Tula Gate. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

b. Upper Air

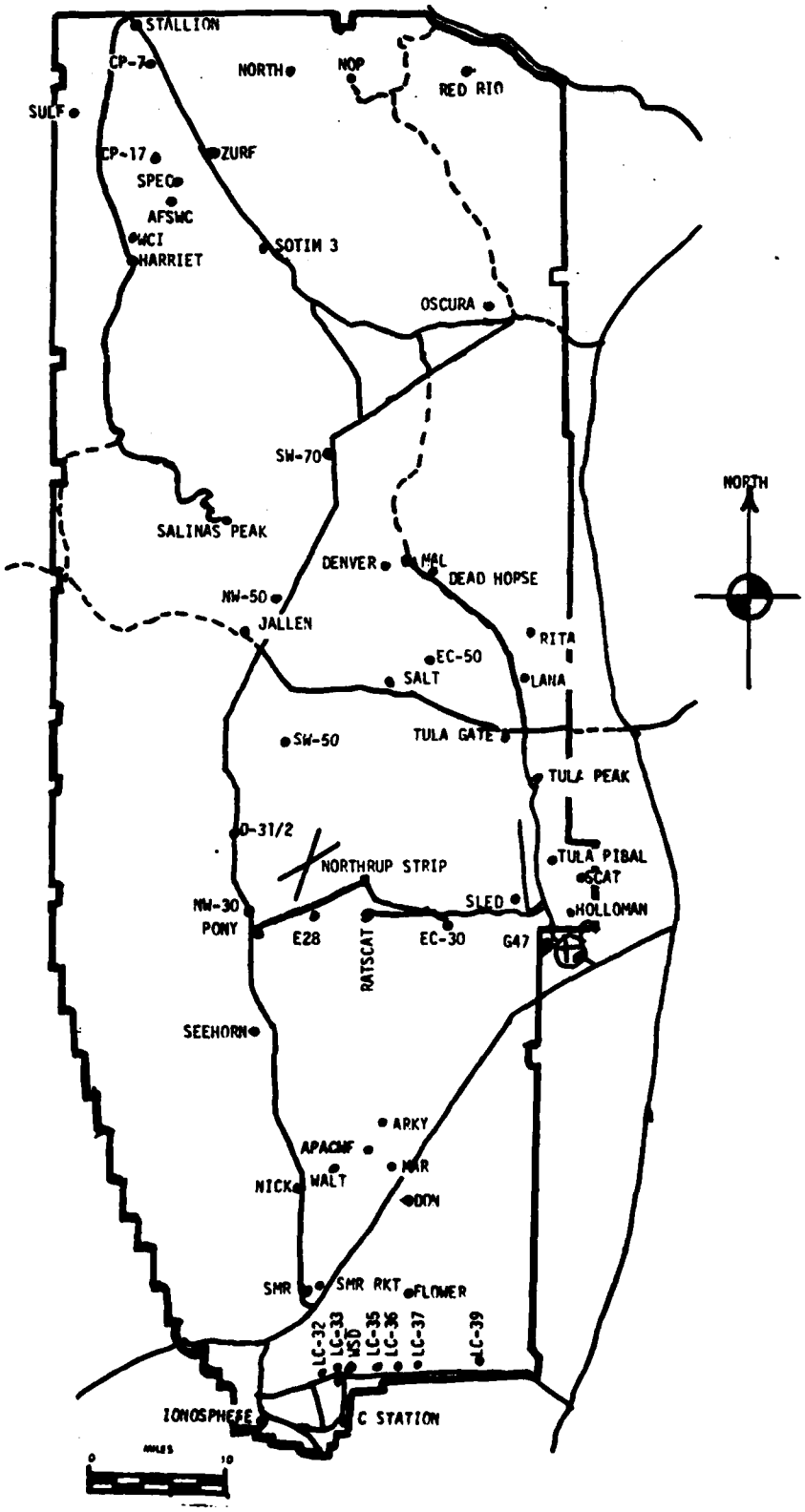
(1) Low level wind data were obtained from pilot-balloon observations at:

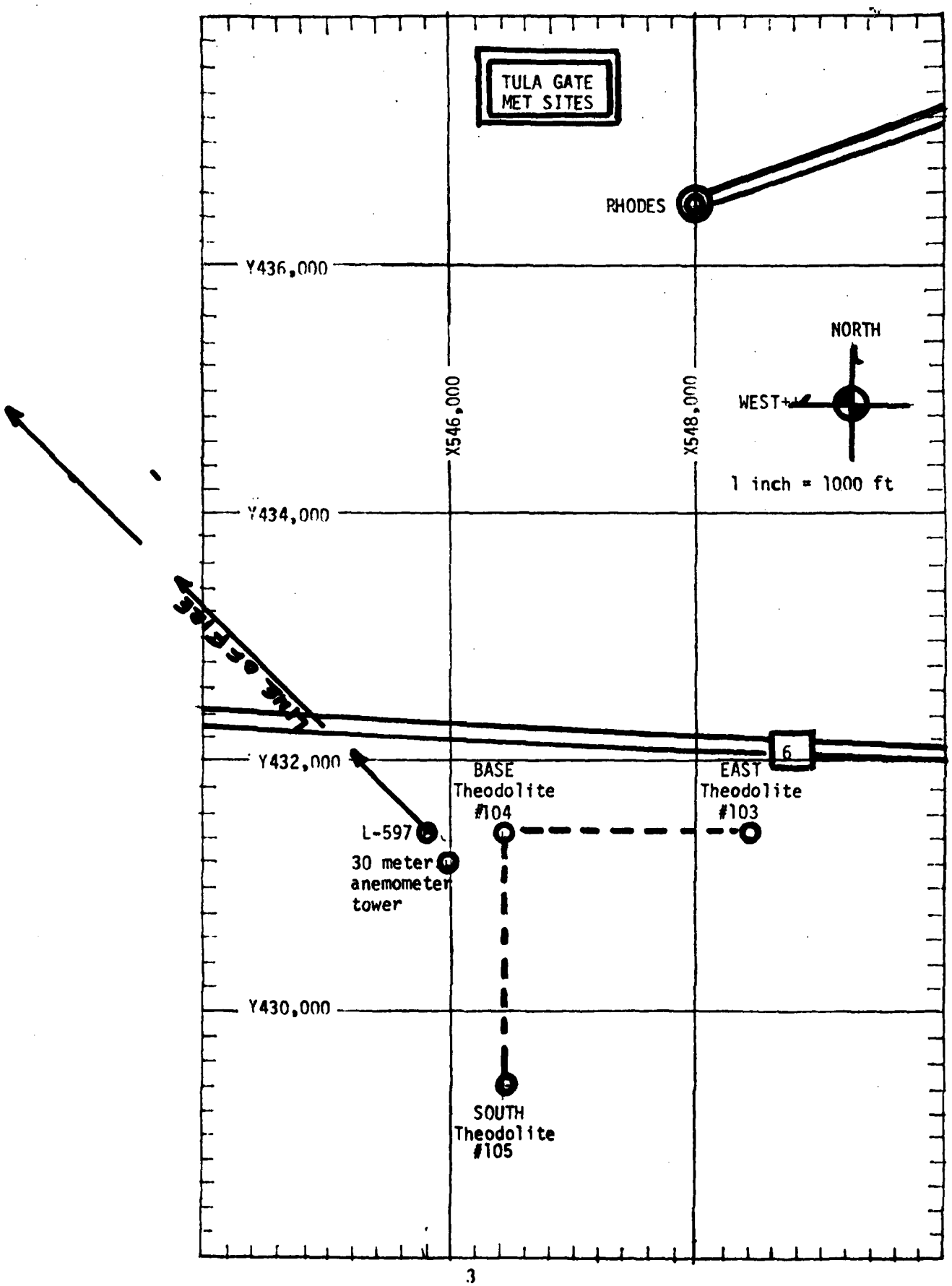
SITE AND ALTITUDE	
Tula Gate	380 Meters
Deadhorse	950 Meters

(2) Air structure data (ravinsonde) were collected at the following Met Sites.

SITE AND TIME	
RITA	1230 MST
RITA	1415 MST
LANA	1440 MST
RITA	1515 MST

WSMR METEOROLOGICAL SITES




TULA GATE
MET SITES
RHODES
Y436,000
NORTH
WEST
X546,000
X548,000
1 inch = 1000 ft
Y434,000
LINE OF FIRE
Y432,000
6
BASE
Theodolite
#104
EAST
Theodolite
#103
L-597
30 meter
anemometer
tower
Y430,000
SOUTH
Theodolite
#105

PROJECT SURFACE OBSERVATION

TABLE 1

STATION TULA GATE

DATE 3 (DAY) Dec (MONTH) 82 (YEAR)

X= 545,944.89 Y= 431,158.70 H= 4,102.47

TIME M S T	PRESSURE mbs	TEMPERATURE °F	TEMPERATURE °C	DEW POINT °F	DEW POINT °C	RELATIVE HUMIDITY %	DENSITY gm/m³	WIND DIRECTION degs Tn	WIND SPEED kts	WIND CHARACTER kts	VISIBILITY
1515	832.6		5.0		0.7	74	1104	345	04		40

OBSTRUCTIONS TO VISIBILITY	CLOUDS 1st LAYER AMT	1st LAYER TYPE	1st LAYER HGT	2nd LAYER AMT	2nd LAYER TYPE	2nd LAYER HGT	3rd LAYER AMT	3rd LAYER TYPE	3rd LAYER HGT	REMARKS
	10	NS	3000							

PSYCHROMETRIC COMPUTATION

TIME:	1515		
DRY BULB TEMP.	5.0		
WET BULB TEMP.	3.0		
WET BULB DEPR.	2.0		
DEW POINT	0.7		
RELATIVE HUMID.	74		

TABLE 2 Anemometer Data - 30 FT. Level of 30 Meter Tower
X = 545,944.89 Y = 431,153.70 H = 4102.47 (Base)

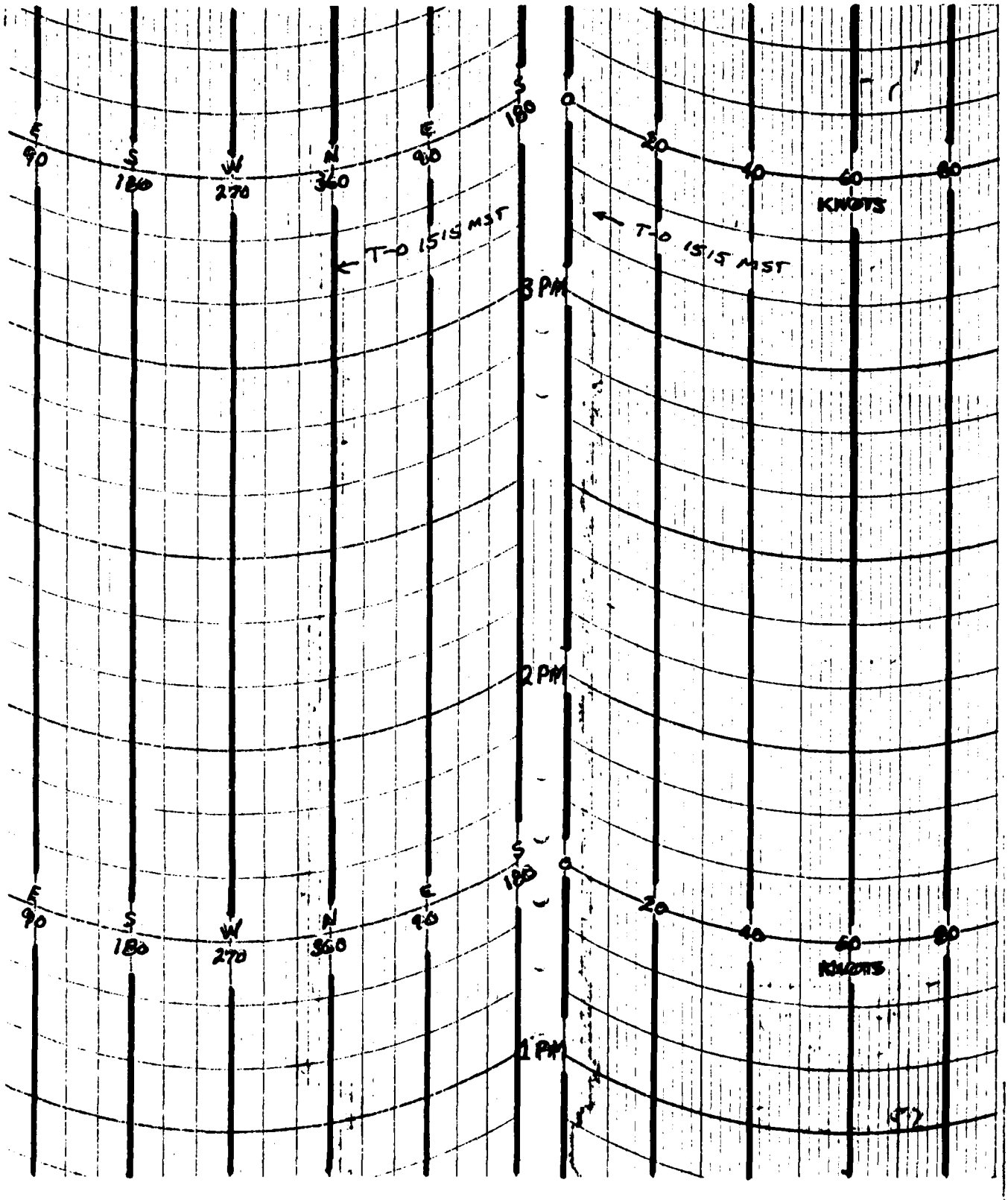


TABLE 3 Anemometer Data - 60 FT. Level of 30 Meter Tower
X = 545,944.39 Y = 431,158.70 H = 4102.47 (Base)

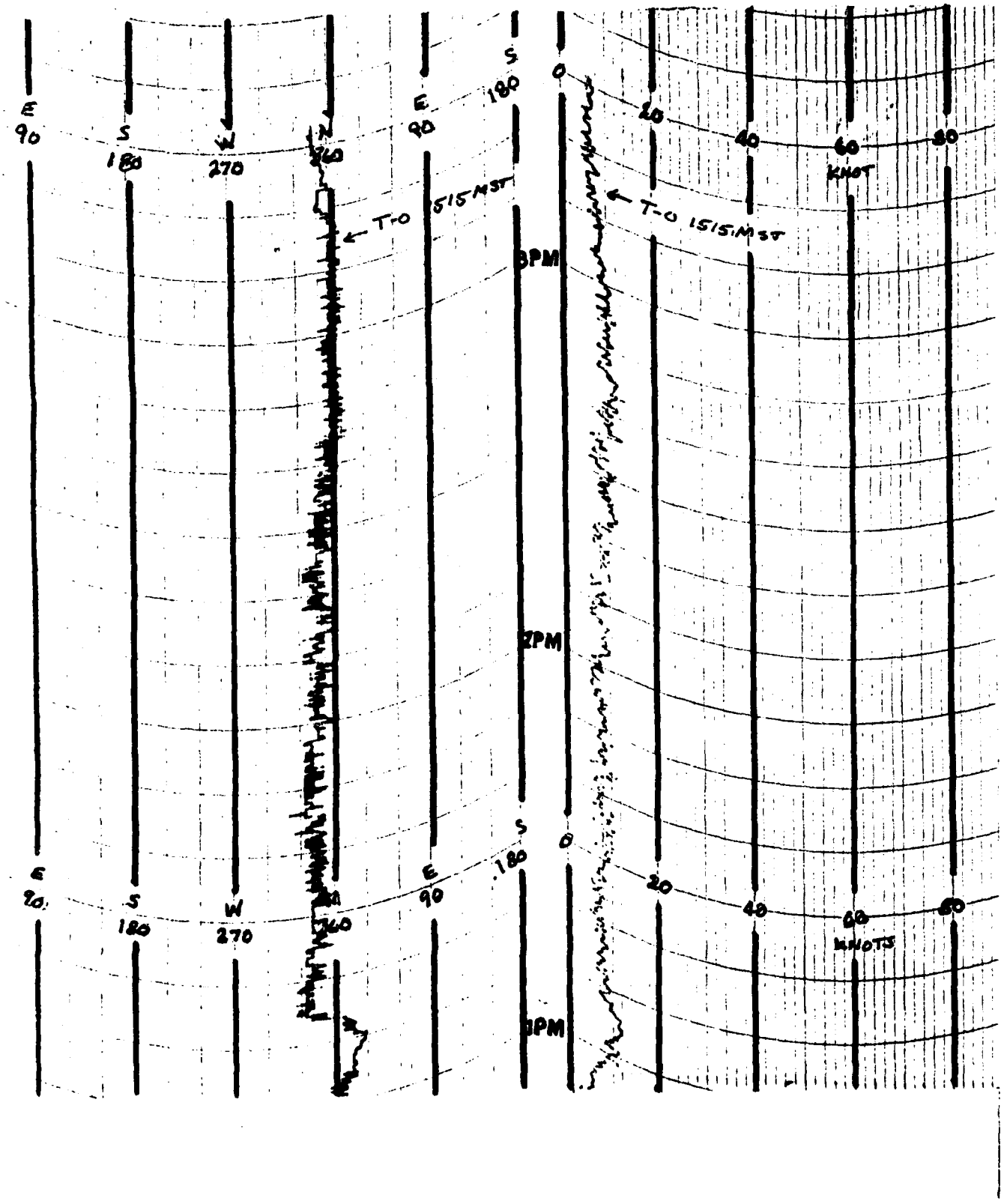


TABLE 4 Anemometer Data - 90 FT. Level of 30 Meter Tower
X = 545,944.89 Y = 431,158.70 H = 4102.47 (Base)

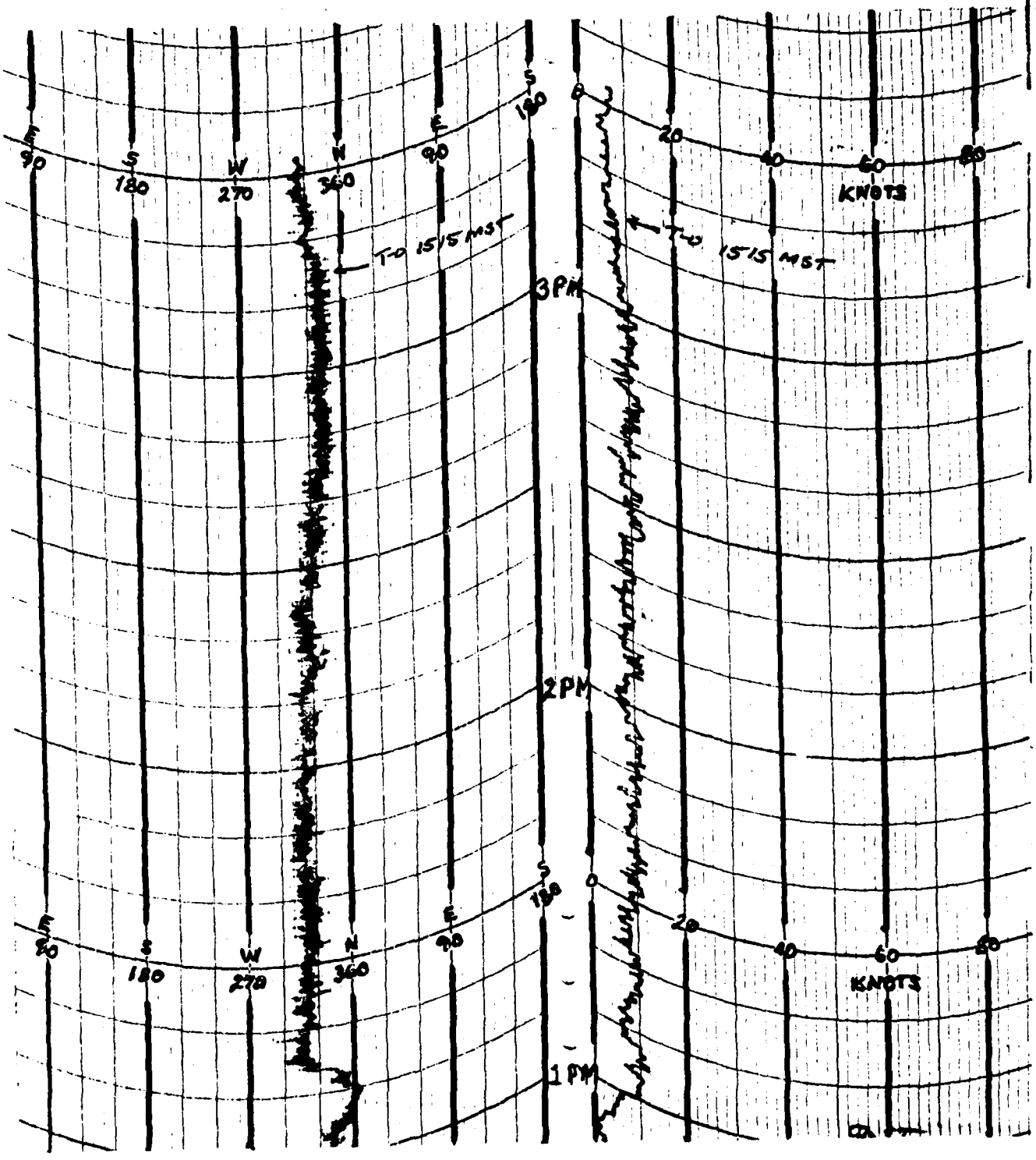


TABLE 5

T-TIME PILOT-BALLOON MEASURED WIND DATA

DATE 8 December 1982

SITE: Tula Gate
TIME: 1515 MST
WSTM COORDINATES:
X= 546,402.29
Y= 431,426.23
H 4,105.86

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	345	03
150	345	03
210	345	03
270	345	03
330	356	06
390	013	05
500		
650		
800		
950		
1150		
1350		
1550		
1750		
2000		

SITE: Deadhorse
TIME 1515 MST
WSTM COORDINATES:
X= 519,982.11
Y= 490,249.23
H= 4,133.72

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	340	03
150	353	14
210	001	16
270	005	16
330	010	14
390	020	12
500	051	03
650	095	11
800	111	11
950	131	09
1150		
1350		
1550		
1750		
2000		

TABLE 6

AIMING AND T-TIME MET MESSAGES
8 December 1982

RITA 1230 MST
METCM1332062
081950128883

00213005	28120883
01085008	27930872
02129015	27730846
03161011	27610805
04263028	27630757
05300033	27470712
06320025	27290669
07324035	27060628
08327037	26740589
09323038	26390553
10318034	26070518
11325036	25890485
12352040	25260439

RITA 1415 MST
METCM1332062
082130128883

00604004	27920883
01040012	27900872
02155011	27760846
03202012	27630805
04272021	27640757
05303036	27570711
06311030	27260669
07309034	26950628
08296035	26640589
09311031	26190552
10331031	25910517
11338032	25620484
12350030	25050438

LANA 1440 MST
METCM1331062
082170127883

00622005	27720883
01067009	27680872
02108013	27620845
03190004	27640805
04255022	27540756
05289037	27500711
06306027	27220668
07298035	26940627
08294034	26300588
09318035	26010551
10325032	25850516
11337027	25530483
12336029	24960437

RITA 1515 MST
METCM1332062
082230128883

00569004	27940883
01013012	27910872
02105006	27770846
03200013	27670805
04269023	27640757
05296031	27540711
06305029	27220668
07320032	26860628
08312033	26510589
09313035	26360552
10307025	26160517
11311024	25700485
12322024	25030438

STATION ALTITUDE 4186.74 FEET MSL
8 DEC. 82 1230 HRS MST
ASCENSION NO. 13

SIGNIFICANT LEVEL DATA
3420210013
RITA

GEODETIC COORDINATES
33.18295 LAT DEG
106.15114 LON DEG

TABLE 7

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT
882.9	4186.7	6.8	2.3	73.0
869.6	4595.7	5.5	.3	69.0
850.0	5206.9	4.2	-.6	71.0
809.2	6516.6	1.7	-2.4	74.0
798.6	6866.4	2.2	-1.6	76.0
792.5	7070.0	2.0	-1.4	78.0
747.6	8620.0	2.4	2.1	98.0
700.0	10363.1	.1	-.2	98.0
657.1	12022.3	-2.8	-4.1	91.0
651.6	12241.7	-2.4	-7.5	68.0
637.9	12797.0	-2.1	-5.9	75.0
616.2	13698.1	-4.6	-5.3	95.0
589.6	14838.1	-6.2	-9.4	78.0
572.6	15588.7	-8.1	-11.1	79.0
547.8	16716.1	-9.9	-28.5	20.0
531.4	17484.1	-11.8	-32.5	16.0
515.4	18252.9	-12.4	-34.3	14.0
500.0	19012.0	-14.4	-35.9	14.0
492.6	19384.6	-13.1	-34.9	14.0
400.0	24466.1	-26.7	-44.3	17.0

STATION ALTITUDE 4186.74 FEET MSL
8 DEC. 62 1230 HRS MST
ASCENSION NO. 13

UPPER AIR DATA
3420210013
RITA
TABLE 3

GEODETIC COORDINATES
33.18295 LAT DEG
106.15114 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
4186.7	882.9	6.8	2.3	73.0	1095.3	652.8	120.0	5.1	1.000279
4500.0	872.7	5.8	.8	69.9	1086.8	651.6	110.5	6.0	1.000274
5000.0	856.6	4.6	-.3	70.3	1071.4	650.2	100.7	7.7	1.000268
5500.0	840.7	3.6	-1.0	71.7	1055.4	649.0	94.5	9.6	1.000263
6000.0	825.1	2.7	-1.7	72.8	1039.4	647.8	90.4	11.6	1.000258
6500.0	809.7	1.7	-2.4	74.0	1023.7	646.7	92.2	13.3	1.000254
7000.0	794.6	2.1	-1.5	77.3	1003.2	647.1	111.8	15.0	1.000251
7500.0	779.8	2.1	-.4	83.5	984.0	647.3	126.8	18.1	1.000249
8000.0	765.2	2.2	.8	90.0	964.9	647.5	144.0	24.0	1.000247
8500.0	751.0	2.4	1.9	96.5	946.2	647.8	153.5	29.9	1.000246
9000.0	737.0	1.9	1.6	98.0	930.1	647.2	159.7	33.1	1.000242
9500.0	723.2	1.2	1.0	98.0	915.0	646.4	164.1	34.1	1.000237
10000.0	709.7	.6	.3	98.0	900.1	645.6	167.8	32.2	1.000232
10500.0	696.4	-.1	-.5	97.4	885.7	644.7	171.3	30.5	1.000227
11000.0	683.2	-1.0	-1.7	95.3	872.0	643.6	174.4	28.7	1.000222
11500.0	670.3	-1.9	-2.8	93.2	858.4	642.5	177.4	27.9	1.000217
12000.0	657.7	-2.8	-4.0	91.1	845.1	641.4	180.0	28.2	1.000212
12500.0	645.2	-2.3	-6.7	71.3	827.9	641.9	182.2	29.2	1.000203
13000.0	632.9	-2.7	-5.7	79.5	813.2	641.5	183.6	31.3	1.000202
13500.0	620.9	-4.1	-5.4	90.6	801.8	639.9	184.3	33.4	1.000200
14000.0	609.0	-5.0	-6.3	90.5	789.4	638.7	184.3	35.5	1.000196
14500.0	597.4	-5.7	-8.1	83.0	776.5	637.8	183.9	36.9	1.000191
15000.0	585.9	-6.6	-9.8	78.2	764.3	636.6	183.3	37.9	1.000186
15500.0	574.6	-7.9	-10.9	78.9	753.2	635.1	182.3	38.5	1.000182
16000.0	563.4	-8.8	-15.6	57.5	741.5	633.8	181.2	39.0	1.000175
16500.0	552.5	-9.6	-23.4	31.3	729.7	632.7	181.3	37.9	1.000168
17000.0	541.7	-10.6	-29.9	18.5	718.5	631.4	181.6	36.4	1.000163
17500.0	531.1	-11.8	-32.5	16.0	707.7	629.9	180.9	34.0	1.000160
18000.0	520.6	-12.2	-33.7	14.7	694.8	629.4	180.0	31.5	1.000157
18500.0	510.3	-13.1	-34.8	14.0	683.4	628.4	179.4	32.4	1.000154
19000.0	500.2	-14.4	-35.9	14.0	673.3	626.8	179.0	33.7	1.000152
19500.0	490.3	-13.4	-35.1	14.1	657.4	627.9	181.4	35.5	1.000148
20000.0	480.3	-14.7	-36.0	14.4	647.4	626.3	183.6	37.4	1.000146
20500.0	470.6	-16.1	-36.9	14.7	637.6	624.7	185.9	39.2	1.000143
21000.0	461.0	-17.4	-37.8	15.0	627.9	623.1	189.6	39.8	1.000141
21500.0	451.7	-18.8	-38.7	15.2	618.5	621.4	194.6	39.6	1.000139
22000.0	442.5	-20.1	-39.6	15.5	609.1	619.8	198.2	39.3	1.000137
22500.0	433.6	-21.4	-40.5	15.8	600.0	618.1	201.2	39.4	1.000135
23000.0	424.8	-22.8	-41.5	16.1	590.9	616.5	202.9	40.0	1.000133
23500.0	416.2	-24.1	-42.4	16.4	582.1	614.8			1.000131

UPPER AIR DATA
3420210013
RITA

STATION ALTITUDE 4186.74 FEET MSL
8 DEC. 82 1230 HRS MST
ASCENSION NO. 13

GEODETIC COORDINATES
33.18295 LAT DEG
106.15114 LON DEG

TABLE 3
Cont'd

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	*INU DATA DIRECTION DEGREES(TN)	*INU DATA SPEED KNOTS	INDEX OF REFRACTION
24000.0	407.7	-25.5	-43.4	16.7	573.3	613.2			1.000128

STATION ALTITUDE 4186.74 FEET MSL
8 DEC. 82 1230 HRS MST
ASCENSION NO. 13

MANDATORY LEVELS
3420210012
RITA
TABLE 9

GEODETIC COORDINATES
33.18295 LAT DEG
106.15114 LON DEG

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS
850.0	5203.	4.2	-.6	71.	97.8	8.5
800.0	6815.	2.1	-1.7	76.	105.2	14.2
750.0	8528.	2.4	1.9	97.	154.0	30.1
700.0	10353.	.1	-.2	98.	170.5	31.0
650.0	12293.	-2.4	-7.3	69.	181.6	28.4
600.0	14371.	-5.6	-7.7	85.	184.0	36.7
550.0	16594.	-9.7	-25.9	25.	181.4	37.5
500.0	18986.	-14.4	-35.9	14.	179.1	33.7
450.0	21593.	-19.0	-38.9	15.	195.5	39.6
400.0	24427.	-26.7	-44.3	17.		

STATION ALTITUDE 4186.74 FEET MSL
8 DEC. 82 1415 HRS MST
ASCENSION NO. 15

SIGNIFICANT LEVEL DATA
3420210015
RITA

GEODETIC COORDINATES
33.18295 LAT DEG
106.15114 LON DEG

TABLE 1)

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT
882.6	4186.7	4.6	1.6	81.0
868.4	4621.6	5.0	.6	73.0
850.0	5195.0	3.9	-.5	73.0
830.4	5817.1	2.8	-.8	77.0
793.8	7015.4	2.0	.8	92.0
775.4	7638.2	2.0	1.7	98.0
730.0	9243.3	2.7	2.4	98.0
700.0	10357.4	.8	.5	98.0
617.2	13650.2	-5.2	-5.3	99.0
576.0	15424.0	-8.8	-12.9	72.0
573.0	15558.0	-5.2	-9.4	72.0
571.6	15621.2	-5.7	-10.6	68.0
568.6	15756.0	-9.3	-15.0	63.0
559.6	16160.5	-10.9	-20.7	44.0
555.8	16332.4	-11.9	-29.7	21.0
552.0	16504.8	-12.5	-34.4	14.0
509.3	18518.4	-14.5	-36.7	13.0
500.0	18976.9	-15.2	-36.6	14.0
430.2	22650.8	-23.9	-41.4	18.0
400.0	24384.4	-28.1	-41.6	26.0

STATION ALTITUDE 4186.74 FEET MSL
8 DEC. 82 1415 HRS MST
ASCENSION NO. 15

UPPER AIR DATA
3420210015
RITA

GEODETIC COORDINATES
33.16295 LAT DEG
106.15114 LON DEG

TABLE 11

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
4186.7	882.6	4.6	1.6	81.0	1103.7	650.2	340.0	4.1	1.000280
4500.0	872.3	4.9	.9	75.2	1089.9	650.5	12.1	2.9	1.000275
5000.0	856.2	4.3	-.1	73.0	1072.3	649.8	71.3	4.0	1.000269
5500.0	840.3	3.4	-.6	75.0	1055.9	648.7	92.1	7.0	1.000264
6000.0	824.7	2.7	-.5	79.3	1038.8	647.9	100.1	10.4	1.000261
6500.0	809.3	2.3	.2	85.5	1020.5	647.6	109.8	12.2	1.000258
7000.0	794.3	2.0	.8	91.8	1002.5	647.2	126.5	12.5	1.000256
7500.0	779.4	2.0	1.5	96.7	983.6	647.3	141.3	14.0	1.000253
8000.0	764.9	2.2	1.9	98.0	964.6	647.5	150.2	19.2	1.000250
8500.0	750.7	2.4	2.1	98.0	945.7	647.8	155.3	24.6	1.000246
9000.0	736.7	2.6	2.3	98.0	927.3	648.1	160.5	29.1	1.000243
9500.0	723.0	2.3	2.0	98.0	911.1	647.7	164.7	33.5	1.000238
10000.0	709.5	1.4	1.1	98.0	897.0	646.7	168.2	34.6	1.000233
10500.0	696.2	.5	.3	98.0	883.1	645.6	171.9	33.7	1.000228
11000.0	683.0	-.4	-.6	98.2	869.5	644.5	174.3	32.8	1.000223
11500.0	670.1	-1.3	-1.5	98.3	856.0	643.3	174.9	31.8	1.000219
12000.0	657.4	-2.2	-2.4	98.5	842.7	642.2	175.3	31.0	1.000214
12500.0	644.9	-3.1	-3.3	98.7	829.7	641.1	174.9	31.5	1.000210
13000.0	632.7	-4.0	-4.2	98.8	816.8	640.0	174.5	32.0	1.000205
13500.0	620.8	-4.9	-5.1	99.0	804.2	638.8	172.2	32.8	1.000201
14000.0	608.8	-5.9	-6.8	93.7	791.9	637.6	169.9	33.6	1.000196
14500.0	597.1	-6.9	-8.9	86.1	779.8	636.3	168.5	33.7	1.000190
15000.0	585.6	-7.9	-11.0	78.5	767.9	635.0	167.2	33.6	1.000185
15500.0	574.3	-6.8	-10.9	72.0	749.7	636.4	169.0	33.4	1.000181
16000.0	563.2	-10.3	-18.3	51.5	745.5	632.0	171.2	33.0	1.000174
16500.0	552.1	-12.5	-34.2	14.2	737.7	629.1	175.6	32.1	1.000166
17000.0	541.2	-13.0	-35.0	13.8	724.5	628.4	179.8	31.4	1.000163
17500.0	530.5	-13.5	-35.5	13.5	711.5	627.8	183.0	31.1	1.000160
18000.0	520.0	-14.0	-36.1	13.3	698.8	627.2	185.3	31.2	1.000157
18500.0	509.7	-14.5	-36.7	13.0	686.3	626.6	186.2	31.7	1.000154
19000.0	499.5	-15.3	-36.6	14.0	674.6	625.7	188.0	31.6	1.000152
19500.0	489.4	-16.4	-37.2	14.6	664.0	624.2	190.0	31.3	1.000149
20000.0	479.5	-17.6	-37.8	15.1	653.6	622.8	191.7	30.6	1.000147
20500.0	469.8	-18.8	-38.5	15.7	643.3	621.4	192.9	30.6	1.000145
21000.0	460.3	-20.0	-39.1	16.2	633.3	619.9	193.7	31.0	1.000142
21500.0	450.9	-21.2	-39.8	16.7	623.4	618.5	194.3	31.3	1.000140
22000.0	441.8	-22.4	-40.5	17.3	613.6	617.0	195.5	30.9	1.000138
22500.0	432.9	-23.5	-41.2	17.8	604.0	615.5	198.6	28.6	1.000136
23000.0	423.9	-24.7	-41.3	19.6	594.5	614.1			1.000133
23500.0	415.1	-26.0	-41.3	21.9	585.0	612.6			1.000131

UPPER AIR DATA
3420210015
RITA

STATION ALTITUDE 4186.74 FEET MSL
8 DEC. 82 1415 HRS MST
ASCENSION NO. 15

GEODETIC COORDINATES
33.18295 LAT DEG
106.15114 LON DEG

TABLE 11
Cont'd

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
24000.0	406.5	-27.2	-41.4	24.2	575.6	611.1			1.000129

STATION ALTITUDE 4186.74 FEET MSL
8 DEC. 82 1415 HRS MST
ASCENSION NO. 15

MANDATORY LEVELS
3420210015
RITA
TABLE 12

GEODETIC COORDINATES
33.18295 LAT DEG
106.15114 LON DEG

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS
850.0	5191.	3.9	-.5	73.	82.2	5.1
800.0	6804.	2.1	.6	89.	120.1	12.2
750.0	8516.	2.4	2.1	98.	155.5	24.8
700.0	10348.	.8	.5	98.	170.8	33.9
650.0	12292.	-2.7	-2.9	99.	175.0	31.3
600.0	14363.	-6.7	-8.3	88.	168.8	33.7
550.0	16576.	-12.6	-34.5	14.	176.3	31.9
500.0	18952.	-15.2	-36.6	14.	187.8	31.6
450.0	21533.	-21.3	-39.9	17.	194.4	31.3
400.0	24345.	-28.1	-41.6	26.		

STATION ALTITUDE 4173.44 FEET MSL
8 DEC. 82 1440 HRS MST
ASCENSION NO. 12

SIGNIFICANT LEVEL DATA
3420320012
LANA

GEODETIC COORDINATES
33.13510 LAT DEG
106.15446 LON DEG

TABLE 13

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT
882.7	4173.4	3.4	1.0	84.0
850.0	5177.8	2.0	.2	88.0
817.4	6217.3	2.7	1.8	94.0
742.6	8764.3	.9	.8	99.0
722.2	9502.5	1.7	1.4	98.0
700.0	10329.0	.3	-.3	96.0
647.0	12393.7	-3.3	-3.4	99.0
639.5	12698.6	-1.2	-1.6	97.0
634.8	12892.2	-1.6	-2.6	93.0
625.4	13280.0	-5.9	-8.2	84.0
616.2	13661.4	-6.8	-10.5	75.0
595.6	14528.7	-10.1	-30.4	17.0
529.8	17468.1	-14.8	-38.6	11.0
521.4	17866.3	-14.1	-37.2	12.0
500.0	18909.3	-15.5	-38.3	12.0
400.0	24305.8	-28.8	-48.4	13.0
331.8	28615.7	-39.1		
300.0	30865.9	-43.9		
297.6	31043.5	-43.9		

UPPER AIR DATA
3420320012
LANA

STATION ALTITUDE 4173.44 FEET MSL
8 DEC. 62 1440 HRS MST
ASCENSION NO. 12

GEODETIC COORDINATES
33.13510 LAT DEG
106.15446 LON DEG

TABLE 13

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
4173.4	882.7	3.4	1.0	84.0	1108.8	648.8	350.0	5.1	1.000280
4500.0	871.9	2.9	.7	85.3	1097.1	648.2	9.0	4.5	1.000276
5000.0	855.7	2.2	.4	87.3	1079.4	647.4	40.7	4.8	1.000272
5500.0	839.8	2.2	.7	89.9	1059.3	647.4	63.0	6.2	1.000268
6000.0	824.1	2.6	1.5	92.7	1038.0	647.9	76.0	8.1	1.000265
6500.0	808.7	2.5	1.7	94.6	1018.8	647.9	98.8	6.1	1.000262
7000.0	793.6	2.1	1.5	95.5	1001.0	647.4	129.8	6.4	1.000257
7500.0	778.8	1.8	1.3	96.5	983.6	647.0	139.1	11.6	1.000253
8000.0	764.3	1.4	1.1	97.5	966.5	646.6	144.7	17.5	1.000249
8500.0	750.0	1.1	.9	98.5	949.6	646.2	150.4	25.1	1.000244
9000.0	736.0	1.2	1.0	98.7	931.6	646.3	155.4	29.3	1.000241
9500.0	722.3	1.7	1.4	98.0	912.2	647.0	162.0	29.9	1.000237
10000.0	708.8	.9	.4	96.8	898.1	646.0	166.0	29.3	1.000232
10500.0	695.4	.0	-.5	96.2	884.1	644.9	168.8	27.9	1.000227
11000.0	682.3	-.9	-1.3	97.0	870.3	643.8	167.6	30.8	1.000222
11500.0	669.4	-1.7	-2.1	97.7	856.7	642.8	165.5	35.0	1.000218
12000.0	656.8	-2.6	-2.8	98.4	843.3	641.7	165.7	36.7	1.000214
12500.0	644.4	-2.6	-2.8	98.3	827.2	641.8	166.6	37.5	1.000210
13000.0	632.2	-2.8	-4.1	90.5	812.4	641.4	167.2	36.0	1.000204
13500.0	620.1	-6.4	-9.5	78.8	808.4	636.8	167.8	33.0	1.000196
14000.0	608.1	-8.1	-16.1	52.4	798.3	634.6	167.3	32.8	1.000187
14500.0	596.3	-10.0	-29.2	18.9	789.1	632.1	166.8	33.2	1.000179
15000.0	584.5	-10.9	-31.7	16.0	776.1	631.0	169.1	34.4	1.000175
15500.0	573.0	-11.7	-33.0	15.0	763.2	630.1	171.4	35.1	1.000172
16000.0	561.7	-12.5	-34.3	14.0	750.4	629.1	174.3	34.4	1.000169
16500.0	550.6	-13.3	-35.8	13.0	737.9	628.1	176.8	34.0	1.000166
17000.0	539.8	-14.1	-37.2	12.0	725.6	627.1	178.3	33.9	1.000163
17500.0	529.1	-14.7	-38.5	11.1	713.2	626.3	180.1	33.5	1.000160
18000.0	518.6	-14.3	-37.4	12.0	697.8	626.9	182.1	32.8	1.000157
18500.0	508.3	-15.0	-37.9	12.0	685.7	626.0	184.5	30.6	1.000154
19000.0	498.1	-15.7	-38.5	12.0	674.0	625.1	187.1	28.3	1.000151
19500.0	487.9	-17.0	-39.4	12.1	663.4	623.6	188.9	27.3	1.000149
20000.0	478.0	-18.2	-40.3	12.2	653.0	622.1	189.9	26.9	1.000146
20500.0	468.2	-19.4	-41.3	12.3	642.7	620.6	190.0	27.0	1.000144
21000.0	458.6	-20.7	-42.2	12.4	632.6	619.1	189.1	27.0	1.000142
21500.0	449.2	-21.9	-43.1	12.5	622.7	617.6	187.9	27.2	1.000139
22000.0	440.0	-23.1	-44.1	12.6	613.0	616.0	187.0	28.2	1.000137
22500.0	431.0	-24.3	-45.0	12.7	603.4	614.5	187.7	29.1	1.000135
23000.0	422.2	-25.6	-45.9	12.8	594.0	613.0	190.5	30.0	1.000133
23500.0	413.6	-26.8	-46.9	12.9	584.8	611.5	194.8	29.8	1.000131

UPPER AIR DATA
3420320012
LANA

STATION ALTITUDE 4173.44 FEET MSL
8 DEC. 82 1440 HRS MST
ASCENSION NO. 12

GEODETIC COORDINATES
33.13510 LAT DEG
106.15446 LON DEG

TABLE 13
Cont'd

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
24000.0	405.1	-28.0	-47.8	12.9	575.7	609.9	200.0	29.5	1.000129
24500.0	396.6	-29.3	-49.2	12.4**	566.5	608.4	202.7	30.3	1.000127
25000.0	388.1	-30.5	-51.3	10.9**	557.1	606.9	204.9	31.3	1.000124
25500.0	379.8	-31.7	-53.5	9.4**	547.9	605.4	205.7	32.5	1.000122
26000.0	371.7	-32.8	-55.8	7.9**	538.8	603.9	206.6	33.5	1.000120
26500.0	363.7	-34.0	-58.5	6.4**	529.9	602.4	207.9	33.3	1.000118
27000.0	355.9	-35.2	-61.4	4.9**	521.1	600.9	209.2	33.0	1.000116
27500.0	348.3	-36.4	-65.1	3.4**	512.5	599.4	210.1	32.6	1.000114
28000.0	340.8	-37.6	-70.1	1.9**	504.1	597.9	211.2	32.6	1.000112
28500.0	333.5	-38.8	-81.5	.3**	495.8	596.4	212.5	33.0	1.000110
29000.0	326.1	-39.9			487.1	595.0	218.0	34.1	1.000108
29500.0	318.9	-41.0			478.5	593.6	224.6	36.0	1.000107
30000.0	311.9	-42.1			470.1	592.2	231.5	39.9	1.000105
30500.0	305.0	-43.1			461.8	590.9			1.000103
31000.0	298.2	-43.9			453.1	589.9			1.000101

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 4173.44 FEET MSL
8 DEC. 82 1440 HRS MST
ASCENSION NO. 12

MANDATORY LEVELS
3420320012
LANA

GEODETIC COORDINATES
33.13510 LAT DEG
106.15446 LON DEG

TABLE 14

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS
850.0	5174.	2.0	.2	88.	49.9	5.2
800.0	6785.	2.3	1.6	95.	117.4	5.6
750.0	8495.	1.1	.9	98.	150.4	25.1
700.0	10319.	.3	-.3	96.	167.8	28.4
650.0	12261.	-3.1	-3.2	99.	166.2	37.2
600.0	14326.	-9.4	-23.9	30.	166.8	33.0
550.0	16514.	-13.3	-35.8	15.	176.9	34.0
500.0	18884.	-15.5	-38.3	12.	186.7	28.6
450.0	21461.	-21.8	-43.0	12.	186.0	27.2
400.0	24267.	-28.8	-48.4	13.	201.6	29.9
350.0	27355.	-36.2	-64.1	4.**	209.9	32.7
300.0	30807.	-43.9				

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 4186.74 FEET MSL
8 DEC. 62 1515 HRS MST
ASCENSION NO. 16

SIGNIFICANT LEVEL DATA
3420210016
RITA

TABLE 15

GEODETIC COORDINATES
33.18295 LAT DEG
106.15114 LON DEG

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT
882.6	4186.7	5.0	.8	74.0
874.4	4436.7	4.1	-1.9	65.0
850.0	5193.2	4.1	-1.1	69.0
791.6	7090.3	2.2	.1	86.0
762.0	8103.7	2.5	2.4	99.0
700.0	10357.1	1.1	1.0	99.0
675.8	11285.2	-1.0	-1.3	98.0
666.6	11644.6	-2.1	-4.0	87.0
635.3	12895.3	-5.2	-5.3	99.0
620.8	13492.1	-5.2	-9.3	73.0
585.0	15015.6	-9.1	-13.4	71.0
576.0	15409.7	-9.8	-15.9	61.0
571.7	15600.0	-9.7	-21.3	38.0
558.6	16188.1	-9.9	-32.3	14.0
541.2	16991.4	-9.3	-32.5	13.0
524.6	17781.2	-10.6	-33.6	13.0
500.0	18987.6	-14.2	-35.1	15.0
429.2	22720.7	-24.6	-38.1	27.0
413.8	23592.9	-26.3	-42.0	21.0
400.0	24396.5	-28.3	-46.2	16.0

STATION ALTITUDE 4186.74 FEET MSL
8 DEC. 82 1515 HRS MST
ASCENSION NO. 16

UPPER AIR DATA
3420210016
RITA

TABLE 16

GEODETIC COORDINATES
33.18295 LAT DEG
106.15114 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
4186.7	882.6	5.0	.8	74.0	1102.3	650.6	320.0	4.1	1.000277
4500.0	872.3	4.1	-1.8	65.3	1093.5	649.4	350.4	2.3	1.000270
5000.0	856.2	4.1	-1.3	68.0	1073.1	649.5	74.0	3.3	1.000267
5500.0	840.3	3.8	-.8	71.7	1054.2	649.2	93.7	6.8	1.000263
6000.0	824.7	3.3	-.5	76.2	1036.4	648.6	99.9	10.5	1.000260
6500.0	809.3	2.8	-.2	80.7	1018.9	648.1	114.4	11.8	1.000257
7000.0	794.3	2.3	.1	85.2	1001.6	647.5	129.6	13.3	1.000254
7500.0	779.5	2.3	1.0	91.3	982.6	647.6	142.0	16.5	1.000252
8000.0	765.0	2.5	2.1	97.7	963.5	647.9	150.0	20.3	1.000250
8500.0	750.7	2.3	2.1	99.0	946.2	647.7	154.1	25.0	1.000246
9000.0	736.7	1.9	1.8	99.0	929.6	647.3	157.6	29.0	1.000242
9500.0	723.0	1.6	1.5	99.0	913.3	646.9	162.0	31.0	1.000238
10000.0	709.5	1.3	1.2	99.0	897.3	646.6	165.3	31.2	1.000233
10500.0	696.2	.8	.6	98.8	882.3	645.9	168.2	30.2	1.000229
11000.0	683.1	-.4	-.6	98.3	869.6	644.5	170.2	29.3	1.000224
11500.0	670.3	-1.7	-2.9	91.4	857.7	642.8	172.3	28.5	1.000217
12000.0	657.6	-3.0	-4.3	90.4	845.7	641.2	175.3	29.0	1.000211
12500.0	645.0	-4.2	-4.9	95.2	833.5	639.7	178.0	29.7	1.000208
13000.0	632.7	-5.2	-5.9	94.4	820.7	638.5	179.4	31.2	1.000204
13500.0	620.6	-5.2	-9.3	73.0	805.4	638.3	180.2	32.5	1.000195
14000.0	608.6	-6.5	-10.6	72.3	793.8	636.7	178.8	33.1	1.000191
14500.0	596.9	-7.8	-12.0	71.7	782.3	635.1	177.0	33.6	1.000187
15000.0	585.4	-9.1	-13.3	71.0	771.1	633.5	174.1	33.6	1.000184
15500.0	574.0	-9.8	-18.2	50.1	758.4	632.6	173.9	34.4	1.000177
16000.0	562.8	-9.8	-27.6	21.7	744.2	632.3	175.1	35.6	1.000169
16500.0	551.8	-9.7	-32.4	13.6	729.3	632.5	176.5	33.8	1.000165
17000.0	541.0	-9.3	-32.6	13.0	714.2	632.9	176.3	31.4	1.000161
17500.0	530.5	-10.1	-33.2	13.0	702.4	631.9	173.3	28.5	1.000158
18000.0	520.0	-11.3	-33.8	13.4	691.6	630.5	172.3	26.8	1.000156
18500.0	509.8	-12.7	-34.4	14.2	681.8	628.7	172.3	25.1	1.000154
19000.0	499.7	-14.2	-35.1	15.0	672.2	626.9	174.4	23.0	1.000151
19500.0	489.6	-15.6	-35.2	16.6	662.2	625.2	175.3	22.9	1.000149
20000.0	479.7	-17.0	-35.5	18.3	652.3	623.6	175.5	23.8	1.000147
20500.0	470.0	-18.4	-35.8	19.9	642.6	621.9	175.2	24.6	1.000145
21000.0	460.5	-19.8	-36.2	21.5	633.1	620.2	176.2	24.3	1.000143
21500.0	451.2	-21.2	-36.7	23.1	623.7	618.4	178.5	22.9	1.000140
22000.0	442.0	-22.6	-37.3	24.7	614.5	616.7	180.1	22.5	1.000138
22500.0	433.1	-24.0	-37.9	26.3	605.[illegible]	615.0	181.7	22.9	1.000136
23000.0	424.2	-25.1	-39.3	25.1	595[illegible]	613.6	183.5	24.9	1.000134
23500.0	415.4	-26.1	-41.6	21.6	585.[illegible]	612.4			1.000131

UPPER AIR DATA
3420210016
RITA

STATION ALTITUDE 4186.74 FEET MSL
8 DEC. 82 1515 HRS MST
ASCENSION NO. 16

GEODETIC COORDINATES
33.18295 LAT DEG
106.15114 LON DEG

TABLE 16
Cont'd

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
24000.0	406.8	-27.3	-44.0	18.5	576.3	610.9			1.000129

STATION ALTITUDE 4186.74 FEET MSL
8 DEC. 82 1515 HRS MST
ASCENSION NO. 16

MANDATORY LEVELS
3420210016
RITA

GEODETIC COORDINATES
33.18295 LAT DEG
106.15114 LON DEG

TABLE 17

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS
850.0	5190.	4.1	-1.1	69.	85.0	4.6
800.0	6805.	2.5	-.0	83.	124.1	12.7
750.0	8519.	2.2	2.1	99.	154.3	25.2
700.0	10348.	1.1	1.0	99.	167.3	30.5
650.0	12290.	-3.7	-4.6	93.	177.1	29.3
600.0	14353.	-7.4	-11.6	72.	177.8	33.6
550.0	16561.	-9.6	-32.4	14.	176.7	33.5
500.0	18962.	-14.2	-35.1	15.	174.3	23.1
450.0	21548.	-21.4	-36.8	23.	178.9	22.8
400.0	24358.	-28.3	-46.2	16.		

LME

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